Translation

PCT/EP2003/012098

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2002P18889WO	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/EP2003/012098	International filing date (*day/month/year*) 30 October 2003 (30.10.2003)	Priority date (*day/month/year*) 15 November 2002 (15.11.2002)
International Patent Classification (IPC) or national classification and IPC H03M 7/00		
Applicant SIEMENS AKTIENGESELLSCHAFT et al.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 7 sheets, as follows:

      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

   ☒ Box No. I Basis of the report
   ☐ Box No. II Priority
   ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   ☐ Box No. IV Lack of unity of invention
   ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   ☐ Box No. VI Certain documents cited
   ☐ Box No. VII Certain defects in the international application
   ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
18 May 2004 (18.05.2004)	25 January 2005 (25.01.2005)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2003/012098

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is language of a translation furnished for the purpose of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☒ the description:

pages 1, 2, 4-14, as originally filed/furnished

pages* 3, 3a received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____, as originally filed/furnished

pages* _____, as amended (together with any statement) under Article 19

pages* 2-20 received by this Authority on 09 November 2004 (09.11.2004)

pages* 1 received by this Authority on 16 December 2004 (16.12.2004)

☒ the drawings:

pages 1/4-4/4, as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-20	YES
	Claims		NO
Inventive step (IS)	Claims	1-20	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims		NO

2. Citations and explanations

a Reference is made to the following document:

D1: Lam S. W. et al.: "Representing lexicons by modified trie for fast partial string matching", Character Recognition Technologies, San Jose, 1-2 Feb. 1993, Bellingham, SPIE, pages 229-237

b D1 is considered the prior art closest to the subject matter of claims 1, 16, 18 and 19. D1 discloses (the references in parentheses relate to said document) a tree with a plurality of hierarchical levels. Each hierarchical level contains one or more nodes. The nodes contain letters of a word which are lexicographically sorted (see figure 2). The tree is used to identify whether a word is located in the lexicon (see abstract) and is therefore considered an index tree for the dictionary. Consequently, the nodes are considered to be index nodes and the letters index data.

c The subject matter of claim 1 differs from D1 in that the tree is converted into a bitstream, wherein the index data of the index nodes is inserted into the bitstream and, after the introduction of the

bitstream of the father node, the index data of the first child node to follow in the indexing tree owing to the sorting of the father node is inserted without information concerning the point in the bitstream at which the index data of this child node is located. In addition, claim 1 differs from D1 in that, for the child node which is not the first to follow the father node, information is inserted into the bitstream concerning the point in the bitstream at which the index data of this child node is located.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

The problem addressed by the present invention can therefore be considered that of converting the tree into a bitstream that can be processed by a computer enabling the index tree to be searched from the root to the leaves so as to ascertain whether a word is contained in the lexicon. A person skilled in the art would implement the trie of D1 as a networked list without thereby being inventive. The links in the networked list would refer to the position of the index nodes in the bitstream.

However, the prior art (see international search report) neither discloses nor suggests that, after inserting the index data of the father node, the index data of the first child node to follow in the indexing tree owing to the sorting of the father node be inserted without information concerning the point in the bitstream at which the index data of this child node is located.

Claim 1 therefore meets the requirements of PCT Article 33(1).

d Claims 2-15 are dependent on claim 1 and therefore likewise meet the PCT requirements as to novelty and inventive step.

e Independent claim 16 decodes a coded data stream which contains a bitstream according to claim 1 on the basis of the index data in the index nodes.

The prior art (see international search report) neither discloses nor suggests a decoding method which does not require details characterising the positions in the bitstream at which the index data of the first child node to follow in the indexing tree owing to the sorting of the father node is located.

Claim 16 therefore meets the requirements of PCT Article 33(1).

f Analogously, device claims 18 and 19, which correspond to claims 1 and 16, meet the requirements of PCT Article 33(1).

g Claim 20 is dependent on claims 18 and 19 and therefore likewise meets the PCT novelty and inventive step requirements.